

FACT SHEET FOR STATE WASTE DISCHARGE PERMIT ST-5354

J.R. Simplot Company – Othello facility

SUMMARY

The J.R. Simplot Company owns and operates a potato processing plant in Othello (Adams Co.), Washington, and produces french fries and formed potato products year around. Process wastewater is pretreated (screening and sedimentation) and pumped approximately 10 miles east of the facility to a lined impoundment (260 MG) and sprayfield site (3200 acres) for final treatment. The processing facility produces approximately 2.2 million gallons of wastewater per day.

The sprayfield site is located in an intensively irrigated agricultural area. It is gently rolling and underlain by basalt and covered by loess. A hydrogeologic investigation of the site concluded it is unlikely that an unconfined aquifer is present. Therefore, no ground water monitoring system has been required by Ecology.

The proposed permit will be similar to the previous permit. Some changes will be made in the testing schedule for the wastewater. Soluble BOD testing of the irrigated wastewater will be added to help assess potential impacts to ground water of irrigating fallow fields with wastewater. The Permittee will be required to review and submit updates of the O&M manual, solid waste and spill plans.

A plan and timetable will be required for submittal the will describe the elimination of discharging the mechanically removed potato peel into the process wastewater stream. This is an effort to better define and implement AKART at the facility.

The submittal of the annual Irrigation and Crop Plan will continue. It will require the comparison of actual nitrogen, fixed dissolved solids, BOD, and water loads, and leaching fractions to values estimated in the previous year's I/C Plan. Estimated values for these parameters for the upcoming year based on the projected crop rotation at the sprayfield site will also be required.

Crop and soil testing will continue. The frequency of soil testing will increase from once to twice per year.

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INTRODUCTION

This Fact Sheet is a companion document to the draft State Waste Discharge Permit No. **ST-5354**. The Department of Ecology (the Department) is proposing to issue this permit, which will allow discharge of wastewater to waters of the State of Washington. This Fact Sheet explains the nature of the proposed discharge, the Department's decisions on limiting the pollutants in the wastewater, and the regulatory and technical bases for those decisions.

Washington State law (RCW 90.48.080 and 90.48.162) requires that a permit be issued before discharge of wastewater to waters of the state is allowed. Regulations adopted by the state include procedures for issuing permits (Chapter 173-216 WAC), and water quality criteria for ground waters (Chapter 173-200 WAC). They also establish requirements which are to be included in the permit.

This Fact Sheet and draft permit are available for review by interested persons as described in Appendix A--Public Involvement Information.

The Fact Sheet and draft permit have been reviewed by the Permittee. Errors and omissions identified in these reviews have been corrected before going to public notice. After the public comment period has closed, the Department will summarize the substantive comments and the response to each comment. The summary and response to comments will become part of the file on the permit and parties submitting comments will receive a copy of the Department's response. The Fact Sheet will not be revised. Changes to the permit will be addressed in Appendix D--Response to Comments.

GENERAL INFORMATION	
Applicant	J.R. Simplot Company
Facility Name and Address	J.R. Simplot 1201 N. Broadway Othello, WA 99344
Type of Facility	Potato processor (French fries and formed potato products)
Type of Treatment:	Land treatment via spray irrigation
Facility Location	Within the city limits of Othello (Adams Co.); west of the intersection of McManamon and Cunningham Rds. Latitude: 46° 50' 16" N Longitude: 119° 10' 29" W.
Legal Description of Sprayfield Area	Approximately 3200 acres located in: Sec. 28 and 33, T. 16, R.31; N ½ of Sec 5, N ½ and SW ¼ Sec 4, T. 15, R.31; W ½ Sec 34, T.16, R.31; S ½ Sec 32, T.16, R.31; Sec 31, T.16, R.31; W ½ NE ¼ and E ½ NW ¼ Sec 6, T. 15, R. 31; and, SE ¼ Sec 25, T.16, R.30 EWM. Latitude: 46° 49' 34" N. Longitude: 118° 57' 25" W.
Contact at Facility	Name: Mitch Anderson Telephone #: (509) 331-3910

GENERAL INFORMATION	
Responsible Official	Name: Steven Anderson Title: Plant Manager Telephone #: 509.331.3910 FAX # (509) 331-3957

BACKGROUND INFORMATION

DESCRIPTION OF THE FACILITY

HISTORY

J.R. Simplot, Inc. owns and operates a potato processing facility in Othello (Adams Co), WA. where approximately 900 million pounds of potatoes are processed annually into approximately 450 million pounds of product. Processing occurs year around with periodic downtimes for maintenance and sanitation cleaning.

The facility has been previously owned and operated by several different companies. J.R. Simplot assumed operations from Nestle USA Foodservice's Division in September 2000.

INDUSTRIAL PROCESSES

Freshly harvested and stored potatoes are processed into french fries and formed potato products. The raw potatoes are trucked to the facility where they are washed, steam peeled, preheated and cut into French fries, which are then blanched, dried, fried, cooled, frozen, and finally packaged. Formed potato products are produced by shredding the smaller, shorter fries, then forming them in a mold, followed by frying, cooling, freezing, and packaging.

There are two main wastewater streams from the process: silt water from the raw receiving area where the raw potatoes are washed prior to processing, and process wastewater from the main processing facility.

TREATMENT PROCESSES

Process wastewater

Wastewater from the processing area is collected in an open floor trench system and gravity flows to a wet well, where it is transported to drum screens (0.08 inch openings). The screened water is sent to a flow equalization basin and then to a clarifier (detention time of 3hrs @ max. daily flow of 2.88 mgd). Solids from the clarifier are dewatered via a centrifuge and hauled off site for cattle feed.

Water from the clarifier is sent to the main discharge pump station where it is sent to the storage lagoon/sprayfield site located approximately 10 miles east of the facility (Fig. 1). The pipeline is constructed of 16" PVC and was designed for a max. daily flow of 2.88 mgd. A flow meter at the pump station measures the discharge flow to the lagoon/sprayfield site.

Silt water

Water is used in the raw receiving area to wash the potatoes prior to their entry into the processing facility. A portion of this water is constantly bled off and replaced with fresh water to maintain quality. The silt water discharge is sent through screens and a silt clarifier. Screened solids (silt, vines, etc) are hauled off site and land applied. The clarifier silt is dewatered using drying beds and then hauled off-site for land application.

The clarified water is either reused or is discharged to the main discharge pump station and sent to the lagoon/sprayfield site. The estimated flow of siltwater is 250,000 gpd.

STORAGE POND AND LAND TREATMENT SYSTEM

The HDPE lined pond is comprised of four anaerobic/facultative cells (Fig. 2) and was designed to provide storage during the winter non-growing season for approximately 260 MG (130 days @ 2 mgd; J-U-B Engineers, 1998). During irrigation wastewater is pumped from the final storage cell to the sprayfields. The pump station is located adjacent to the pond and is comprised of three 200 hp pumps each with a capacity of 4800 gpm (6.9 MGD) (J-U-B Engineers, 1989).

The land treatment system is comprised of approximately 3200 acres (Fig. 2) and is irrigated by a combination of center pivot and wheel line systems. Most of the land is leased by Simplot. Supplemental irrigation water is available from the East Low Canal (Fig. 1) via a 15-inch PVC pipeline or from a deep well located at the sprayfield site (Fig. 2). Information gathered during the last inspection showed a reduced pressure backflow preventer at the well site, and a check valve assembly at the canal pump site.

Hydraulic Loading

A review of the annual irrigation and crop plans for the sprayfields (1999-2003) shows that the amount of process wastewater applied has consistently been less than the crop requirements; wheat, alfalfa, potatoes.

	Gross wastewater applied (acre-ft)	Crop Requirement (acre-ft)
1999	2337	4749
2000	2235	6076
2001	2400	4901
2002	3122	4076
2003	2900	4944

Supplemental water was provided from the canal, deep well, and precipitation. The ability to limit the amount of total water applied to the fields has resulted in low leaching fraction (LF) values; < 2%. Values for LF represent the estimated amount of the total water applied that has percolated beyond the root zone. LF values for the period 1999-2003 have consistently been less than the leaching requirement (LR) which represents the amount of additional irrigation water added (expressed as the percent of the total water applied) to control soil salinity.

Nitrogen Loading

Nitrogen balance information reported by Simplot in the irrigation and crop plans shows that the total annual net nitrogen loading to the sprayfield site was greater than that removed by the crops for 1999 – 2001, but less than crop requirements for 2002 and 2003. The imbalance for the 1999

– 2001 period was due, in part, to applying wastewater to fallow fields and nitrogen not removed from the fields in the form of crop residue (e.g., corn stover and potato vines).

However, when the nitrogen balances were analyzed on a field acreage-weighted basis the nitrogen balance for the site has been near zero or negative; i.e., more N removed than applied.

	Effluent Net N load (lbs/acre) ¹	N removed (lbs/acre) ¹	Agronomic Balance ¹
1999	196	163	8.3
2000	200	179	-10
2001	188	159	3.5
2002	143	149	-39
2003	138	193	-90
¹ Values are acreage weighted over the entire site			

Total Dissolved Salt Loading

Values for TDS loading are only available for two crop years:

2002: 150-4300 lbs/acre

2003: 770-1600 lbs/acre

These values exceed the crop requirements and are comparable to other potato and vegetable processors that use land treatment systems. The amount of land needed to “treat” the salt load would be more expansive than the current system, and be cost prohibitive to bring online and operate. Salts applied to the fields are instead managed by applying excess water to leach salts from the soil to control salinity levels. Simplot’s management plan is to irrigate in a manner that the amount of water leached from the root zone (leaching fraction) is less than or equal to the leaching requirement to control soil salinity.

GROUND WATER

A hydrogeologic investigation of the sprayfield site was done to describe the geologic and hydrogeologic setting of the site, and to confirm or refute the assumption that no unconfined near surface ground water is present beneath the sprayfield site (CES, 1998).

The site is underlain by basalt covered by loess deposits. A review of well logs in the area showed the median depth to the basalt to be 45ft. A majority of the existing wells were finished in the confined aquifers within the basalts. The median static water depth was found to be 312 ft bgs (below ground surface).

Three borings were conducted in January 1998. Each was done by drilling to the first basalt layer. Based on the results of the field investigation, the HG report concluded, “..it is unlikely that unconfined groundwater is present beneath the land application site.”

The report also conducted a water balance for the sprayfield site for the operating years of 1995, 1996, and 1997 to estimate the leaching fraction (LF) for each of the sprayfields. The LF represents the percentage of the total water input onto the sprayfields estimated to have percolated beyond the root zone. The LF values were compared to the leaching requirement (LR), which represents the percentage of total water input onto the sprayfields that is added in excess to the crop requirements to leach salts to control soil salinity. To protect ground water, the LF for each sprayfield should be \leq LR.

It was determined that, in general, the LF values for the site were less than the LR values. Fields cropped in alfalfa had negative water balances ($LF < LR$) while fields with potatoes and winter wheat tended to have positive water balances ($LF > LR$).

Based on the results of the 1998 HG report, Ecology has not required the installation of a ground water monitoring system at the sprayfield site.

PERMIT STATUS

The previous permit for this facility was reauthorized on January 24, 2001. The permit was modified on May 3, 2001 to add sprayfields to the system and update the total sprayfield acreage to 3680 acres.

An application for permit renewal was submitted to the Department on February 22, 2005 and accepted by the Department on February 28, 2005.

SUMMARY OF COMPLIANCE WITH THE PREVIOUS PERMIT

The facility last received a compliance inspection on March 11, 2004. It was determined that the facility was in compliance with the conditions and limits in the permit.

During the history of the previous permit, the Permittee has remained in compliance based on Discharge Monitoring Reports (DMRs) and other reports submitted to the Department and inspections conducted by the Department.

WASTEWATER CHARACTERIZATION

The concentration of pollutants in the discharge was reported in the permit application and in monthly discharge monitoring reports. The proposed wastewater discharge prior to land application is characterized for the following parameters as reported in the permit application.

Table 1: Wastewater Characterization

<u>Parameter</u>	<u>Concentration</u>
TKN	6.5 - 165 mg/L; Avg. = 86 mg/L
COD	30 - 1792 mg/L; Avg. = 733 mg/L
TDS	134 - 1436 mg/L; Avg. 957 mg/L
pH	6.5 – 9.2 s.u.
Sodium	7.2 – 917 mg/L; Avg. = 125 mg/L
Potassium	12 – 314 mg/L; Avg. = 219 mg/L
Chloride	3 – 105 mg/L; Avg. = 51 mg/L
Magnesium	5.5 – 17.3 mg/L; Avg. = 13 mg/L
Oil & Grease	2.2 – 36.7 mg/L; Avg. = 19
Ortho-phosphate (as P)	0.85 – 55.6 mg/L; Avg. = 24

The values presented in the application are similar to what has been reported to Ecology in Simplot's monthly discharge monitoring reports (Addendum 1). A notable discrepancy in the two data sets is the maximum effluent sodium value reported in the application (917 mg/L) and that reported in the DMR (116 mg/L). There is no explanation for the high value reported in the application.

PROPOSED PERMIT LIMITATIONS

State regulations require that limitations set forth in a waste discharge permit must be either technology- or water quality-based. Wastewater must be treated using all known, available, and reasonable treatment (AKART) and not pollute the waters of the State. The minimum requirements to demonstrate compliance with the AKART standard were determined in the engineering report (J-U-B Engineers, 1989). The engineering report was updated in 1998 (J-U-B Engineers).

Neither of the engineering reports defines the treatment capacity of the sprayfield site or a description of the leaching program to regulate soil salinity. The 1998 report only presents a summary of the sprayfield site with values for water and nitrogen loading for a typical crop season.

Instead of requesting an updated engineering report to define the treatment capacity and leaching plan for the site, the annual Irrigation and Crop Plan (described later) will be required to report the estimated water, nitrogen, fixed dissolved solids, and BOD loadings, and the leaching requirement for the upcoming year. These values will define the treatment capacity for the site for the upcoming year. These values will be compared to actual values and to crop uptake values in the following year's report to determine how well the fields were loaded and managed relative to the treatment capacity.

Defining the treatment capacity of the site in the annual Irrigation and Crop Plan recognizes that the capacity of the sprayfield site changes as the crop rotation changes each year. Salt management and the leaching requirement for each field also changes each year in response to the annual precipitation and salinity level in the root zone.

TECHNOLOGY-BASED EFFLUENT LIMITATIONS

All waste discharge permits issued by the Department must specify conditions requiring available and reasonable methods of prevention, control, and treatment of discharges to waters of the state (WAC 173-216-110). The following permit limitations are necessary to satisfy the requirement for AKART:

1. Wastewater shall be land applied via spray irrigation not to exceed agronomic rates (as defined in the Department's ground water implementation guidance) for total nitrogen and water, and at rates for other wastewater constituents that are protective of background ground water quality.
2. Total nitrogen and water shall be applied to the sprayfields as determined by a current irrigation and crop plan.
3. The system must be operated so as to protect the existing and future beneficial uses of the ground water and not cause a violation of the ground water standards.

GROUND WATER QUALITY-BASED EFFLUENT LIMITATIONS

In order to protect existing water quality and preserve the designated beneficial uses of Washington's ground waters including the protection of human health, WAC 173-200-100 states that waste discharge permits shall be conditioned in such a manner as to authorize only activities that will not cause violations of the Ground Water Quality Standards. The goal of the ground water quality standards is to maintain the highest quality of the State's ground waters and to protect existing and future beneficial uses of the ground water through the reduction or elimination of the discharge of contaminants to ground water [WAC 173-200-010(4)]. This goal is achieved by [GW Implementation Guidance, Abstract, page x]:

1. Requiring that AKART (all known available and reasonable methods of prevention, control and treatment) be applied to any discharge;
2. Application of the antidegradation policy of the ground water quality standards. This policy mandates protecting background water quality and preventing degradation of water quality which would harm a beneficial use or violate the ground water standards; and
3. Establishing numeric and narrative criteria for the protection of human health and welfare in the ground water quality standards.

Applicable ground water criteria as defined in Chapter 173-200 WAC and in RCW 90.48.520 for this discharge include the following:

Table 2: Ground Water Quality Criteria

Total Dissolved Solids	500 mg/L
Nitrate	10 mg/L
pH	6.5 to 8.5 standard units

Based on information provided by the hydrogeologic investigation of the sprayfield site (CES, 1998) and the design of the system that includes storage of wastewater during the winter season (J-U-B Engineers, 1989), Ecology has determined that the discharge authorized by this proposed permit are not expected to interfere with beneficial uses of the ground water.

While ground water monitoring may not be applicable to this site to assess its operation and protection of all ground water, Ecology may at the next permit cycle require some form of alternative testing (e.g., vadose zone monitoring). The testing will help “ground truth” the information provided by J.R. Simplot in their hydrogeologic report relative to leaching from the site and the nitrogen/water loading information presented in their annual Irrigation and Crop Plans. Information provided by the additional wastewater and soils testing in the proposed permit will also be used in the evaluation.

COMPARISON OF LIMITATIONS WITH THE EXISTING PERMIT REISSUED JANUARY 24, 2001

Table 3: Comparison of Previous and New Limits

Parameter	Existing Limits	Proposed Limits
Total sprayfield acreage	3680 acres	3200 acres
Total nitrogen and water load	According to the current Irrigation and Crop Plan	Unchanged

The number of sprayfield acres in the proposed permit is taken from the information presented in the permit application. The list of sprayfields in the application is unchanged from what is in the current permit. The difference in the amount of acres from the existing permit is due, in part, to not irrigating the corners of the center pivot fields. (NOTE: See Response to Comments on the Fact Sheet)

MONITORING REQUIREMENTS

Monitoring, recording, and reporting are specified to verify that the treatment process is functioning correctly, that ground water criteria are not violated, and that effluent limitations are being achieved (WAC 173-216-110).

WASTEWATER MONITORING

The monitoring schedule is detailed in the proposed permit under Condition S2. Specified monitoring frequencies take into account the quantity and variability of the discharge, the treatment method, past compliance, significance of pollutants, and cost of monitoring.

The current monitoring requirements for “pretreated wastewater” from the processing facility will remain unchanged. The monitoring requirements for the “irrigated wastewater” will have the following changes:

1. Conductivity will be eliminated
2. “Fixed Dissolved Solids” will replace “Total Dissolved Solids”. FDS more accurately represents the inorganic salt load than does TDS, because TDS includes organic solids.
3. Total and soluble BOD₅ will replace COD testing. The reason for testing both BOD fractions is explained later in the discussion of applying wastewater onto fallow fields, in the Operation and Maintenance section of this Fact Sheet. (**NOTE:** See Response to Comments for permit Section S2.B for changes in this requirement)
4. Oil and grease testing will be eliminated. It’s presence is accounted for in the BOD test. Some O&G internal process control testing of the “pretreated wastewater” that is discharged to the ponds should be considered by J.R. Simplot to monitor the effectiveness of the O&G removal measures already in place at the facility.

CROP MONITORING

Crop tissue analysis will continue to allow for the determination of the level of crop uptake of nitrogen and other nutrients. The following changes will be made:

1. Crude protein will be eliminated, since TKN is already being measured.
2. The list of cations and anions will be replaced with “ash weight” and “bicarbonate” (mg/Kg, dry wt). The ash weight minus the bicarbonate will provide an estimate of the total inorganic salt content of the plant tissue. This information will provide an estimate of FDS uptake by the crop and allow for the determination of a dissolved solids balance for the sprayfield site.

SOIL MONITORING

Monitoring of the soils at each center pivot and wheel-line field will continue, but the frequency of testing will be twice per year (beginning and end of growing season), instead of once (end of growing season). The reason for the change is explained later in the discussion of applying wastewater onto fallow fields, in the Operation and Maintenance section of this Fact Sheet. (**NOTE:** See Response to Comments for Section S2.C for changes to this requirement)

GROUND WATER MONITORING

Based on the results of the latest hydrogeologic report (CES, 1998), Ecology has not required the installation of a ground water monitoring system.

OTHER PERMIT CONDITIONS

REPORTING AND RECORDKEEPING

The conditions of S3 are based on the authority to specify any appropriate reporting and recordkeeping requirements to prevent and control waste discharges (WAC 173-216-110).

FACILITY LOADING

The design criterion for the treatment facility is taken from 1998 engineering report prepared by J-U-B Engineers and is as follows:

Peak Daily flow (from processing facility to lagoon/sprayfield site): 2.88 mgd

The permit requires the Permittee to maintain adequate capacity to treat the flows and waste loading to the treatment plant (WAC 173-216-110[4]). For significant changes in loadings to the treatment works, the permit requires a new application and an engineering report (WAC 173-216-110[5]).

IRRIGATION AND CROP MANAGEMENT PLANS

The Irrigation and Crop Management Plan (I/C Plan) is required to provide discharge limits for the application of total nitrogen and water to the sprayfield site (Section S1 of the permit), and to, in part, support the engineering report(s). This plan shall include a consideration of wastewater application at agronomic rates and should describe and evaluate various irrigation controls.

As previously mentioned, the 1989 and 1998 engineering reports do not specifically describe the treatment capacity of the land treatment site. They only give a general description of the water and nitrogen loads to the site for a given crop rotation. There is no description of the leaching fraction or leaching requirement to control soil salinity, or a description of the plan to maintain a level of acceptable soil salinity.

The I/C Plan summarizes the operations of the treatment site for the previous year, and describes the operations for the upcoming year based on the chosen crop rotation. In an effort to evaluate the operations of the sprayfield and get an understanding of the treatment capacity of the site for each year, the permit will require the I/C Plan to:

1. Compare the actual nitrogen, FDS, BOD, and water load values, and leaching fractions for the reporting year to the values that were estimated in the proposed cropping schedule section of the previous I/C Plan.
2. Compare crop uptake values of nitrogen, FDS, and water to actual and estimated values.
3. Estimate the nitrogen, FDS, BOD, hydraulic load, and leaching requirement for the proposed crop rotation for the upcoming year; e.g., treatment capacity.

(NOTE: Please see Response to Comments for Section S8 for changes to this requirement).

OPERATIONS AND MAINTENANCE

The proposed permit contains condition S.5. as authorized under Chapter 173-240-150 WAC and Chapter 173-216-110 WAC. It is included to ensure proper operation and regular maintenance of equipment, and to ensure that adequate safeguards are taken so that constructed facilities are used to their optimum potential in terms of pollutant capture and treatment.

Operations and Maintenance Manual

Two O&M manual's have been prepared and submitted for the treatment system. One was written for the lagoon, pumps and piping (J-U-B, 1997), and the other for the pretreatment facilities (Nestle, USA, 1997). A quick review of the J-U-B manual showed several deficiencies that need to be addressed: 1) no description is given for the backflow preventers at the irrigation canal and well site; 2) there is no description of the flow metering system; and, 3) changes in ownership, and personnel and phone numbers at the facility have not been done. A similar review of the Nestle plan showed: 1) a pretreatment process flow diagram is dated September 1990; 2) there is no description of flow monitoring; 3) there is a need to update ownership and personnel listed in the plan.

Given the age of the manuals and the changes that have occurred at the facility since they were drafted, the permit will require J.R. Simplot to submit updated O&M manuals to reflect the current ownership and changes made to the treatment system. The permit shall require that the updated manuals meet the requirements for industrial wastewater facilities in WAC 173-240-150.

Best Management Practices

In an effort to reduce the potential of leaching nutrients (e.g., nitrogen) and dissolved solids through the soil column and past the root zone to the deeper ground water, the following BMPs for the sprayfields will be added to the permit:

1. Manage the irrigation of the crops so that the leaching fraction is equal to or less than the leaching requirement.
2. Leach only when necessary, only during the late winter, and use only precipitation and fresh water not mixed with any wastewater.
3. Utilize the irrigation practices given in Chapter 4 of the "Irrigation Management Practices" manual (Ecology/WSU, 1995).

Fallow Fields

J.R. Simplot's irrigation management of the sprayfield system includes the use of a wheat/fallow rotation which includes the application of process wastewater onto fallow fields. Following the wheat harvest wastewater is generally applied to the fallow fields in the Fall/Winter (Oct. and Nov) and/or Spring (March and April). The fields sit fallow through the summer and are planted in winter wheat in the Fall. The fields receive no further wastewater applications after planting.

In 2002 four fallow fields received a total of 393 ac-ft of wastewater with a range of nitrogen loads of 56-163 lbs/acre. Most of the water was applied during the Spring (March-April). The water balance for 2002 showed no percolate loss from the root zone. In 2003 five fallow fields

received 369 ac-ft of wastewater and nitrogen loads of 25 – 184 lbs/acre. Two fields showed percolate losses of 0.5” and 1.0”. For both years, the annual Irrigation and Crop Plan reports noted that soil moisture and nitrate increased in the fallow fields.

The application of wastewater onto fallow fields does not meet Ecology’s guidance for land treatment systems (Ecology, 2004). The guidance states that to achieve the level of treatment necessary to protect ground water, “A viable crop must be established and maintained...”. The organic nitrogen rich wastewater that is applied to a fallow field will undergo some mineralization and nitrification that results in the generation of mobile nitrates and dissolved solids that are available for leaching. There is literature which shows that the application of nutrient rich wastes onto fallow fields has a high potential to impact ground water (WSU, 2000).

In response to Ecology’s concerns about applying wastewater to the fallow fields, J.R. Simplot has responded that the wheat/fallow rotation is an important component of their management of the storage pond volume, and that as long as the leaching fraction from the fallow fields is equal to or less than the leaching requirement, the wheat/fallow irrigation practices are protective of the ground water.

To allow for a departure from Ecology’s guidance and a continuation, at least for this permit cycle, of the wheat/fallow irrigation practices at the site, it has been decided to require some additional testing of the irrigated wastewater. Soluble BOD testing of the irrigated wastewater will be added to the permit. Knowing the relationship between the total and soluble fractions of the BOD in the irrigated wastewater will provide information on the potential impacts of applying wastewater to the sprayfields, especially during fallow conditions. Soluble BOD can percolate deeper into the soil column and cause changes in the cation/anion and nitrate makeup of the percolate as the organic matter is mineralized. In general, the higher the soluble:total BOD ratio, the higher the potential for impacts to the soil and quality of the percolate, and potential to impact ground water, especially under fallow conditions. The apparent absence of an unconfined aquifer beneath the sprayfield site does not preclude the requirement of the Permittee to protect the deeper ground water as required by the state’s ground water standards; WAC 173-200.

The BOD information gathered during this permit cycle will be used in the next permit cycle to evaluate the continuation of applying wastewater onto fallow fields. If Ecology determines that there is a “high” soluble:total ratio, some pretreatment prior to land application or the abandonment of applying wastewater onto fallow fields will be required. (NOTE: Please see Response to Comments for Section S2.B and for the Fact Sheet for changes to this requirement).

In addition to adding soluble BOD testing, the frequency of soil sampling in Section S2 of the permit will be increased from once per year (at the end of the growing season), to twice per year (beginning and end of the growing season). This will provide information on the changes in soil chemistries that occur with and without a cover crop. (NOTE: Please see Response to Comments for Section S2.C for changes to this requirement).

Potato peel waste

Information received during the March 11, 2004 inspection revealed that the peel is removed by wet scrubbers after steam injection and then is dumped into the process wastewater system, rather than being collected and transported off-site. Intentionally dumping the peel that has been mechanically removed and that is not part of the wastewater stream is not considered to be a

pollutant prevention or control practice as required by AKART. Adding the peel to the wastewater system increases the organic load of the process waste stream, which increases the organic load to the sprayfields and increases odors.

Ecology has observed other processing facilities that have kept the peel out of the process wastewater stream and believes that it is reasonable to implement its separation to achieve AKART.

The permit will require that in addition to the updates of the O&M manuals that the Permittee inform Ecology what steps will be taken to keep the mechanically removed potato peel material out of the process wastewater stream. The construction and implementation of the final solution will be completed by June 2010. This allows for almost the entire permit cycle to complete this AKART requirement. (NOTE: Please see Response to Comments for Section S5.E for changes to this requirement).

SOLID WASTE PLAN

Solid wastes from the processing facility (dirt; rocks; vines; mud) are hauled off-site and land applied as per a solid waste permit issued by the Adams County Health Department. The solid waste plan submitted to Ecology was prepared in June 1997 when the facility was owned and operated by Nestle Food Services.

The proposed permit will require J.R. Simplot to review the plan and submit an update.

SPILL PLAN

The current spill plan on file with Ecology was prepared and submitted by Nestle USA in June 1997. It was prepared to describe the procedural guidelines for responding to a leak of wastewater from the transmission pipeline. Pipeline leaks occurred in July and August of 2004 and required some substantial repairs. Simplot reported these leaks to Ecology and repaired them in a timely manner.

In an effort to provide safeguards on the pipeline, the 1989 engineering report described a flow-based system that would monitor flow at each end of the pipeline and shut down the pumping system and activate an audible alarm if a difference occurred between the flows measured at the processing facility and at the lagoon. This system was not installed. Leaks are now discovered by maintenance staff that visually inspects the pipe route as they travel the pipeline route to the lagoon site.

In addition to potential leaks from the pipeline, cleaning chemicals are stored on-site. A bulk caustic tank is on-site and is located within a concrete lined area that has a trench drain that is connected to the wastewater system.

Given the age of the pipeline, the change in ownership and personnel, and the onsite chemical storage, the proposed permit will require J.R. Simplot to review and submit an updated Spill Plan. It will cover both potential leaks from the pipeline as well as potential spills from on-site chemicals.

GENERAL CONDITIONS

General Conditions are based directly on state laws and regulations and have been standardized for all industrial waste discharge to ground water permits issued by the Department.

Condition G1 requires responsible officials or their designated representatives to sign submittals to the Department. Condition G2 requires the Permittee to allow the Department to access the treatment system, production facility, and records related to the permit. Condition G3 specifies conditions for modifying, suspending or terminating the permit. Condition G4 requires the Permittee to apply to the Department prior to increasing or varying the discharge from the levels stated in the permit application. Condition G5 requires the Permittee to construct, modify, and operate the permitted facility in accordance with approved engineering documents. Condition G6 prohibits the Permittee from using the permit as a basis for violating any laws, statutes or regulations. Conditions G7 and G8 relate to permit renewal and transfer. Condition G9 requires the payment of permit fees. Condition G10 describes the penalties for violating permit conditions.

RECOMMENDATION FOR PERMIT ISSUANCE

This proposed permit meets all statutory requirements for authorizing a wastewater discharge, including those limitations and conditions believed necessary to control toxics, and to protect human health and the beneficial uses of waters of the State of Washington. The Department proposes that the permit be issued for five years.

REFERENCES FOR TEXT AND APPENDICES

Cascade Earth Sciences (CES). 1998. Hydrogeologic Investigation Report, Potato Process Water Land Application Area, Nestle USA, Othello, Washington.

Department of Ecology. 2004. Guidance on Land Treatment of Nutrients in Wastewater, With Emphasis on Nitrogen. November. Publ. #04-10-081.

Department of Ecology and Washington State University. 1995. Irrigation Management Practices to Protect Ground Water Quality and Surface Water Quality, State of Washington. EM4885. April.

Faulkner, S.P., Patrick Jr., W.H., Gambrell, R.P., May-June, 1989. Field Techniques for Measuring Wetland Soil Parameters, Soil Science Society of America Journal, Vol. 53, No.3.

J-U-B Engineers, Inc. 1989. Pretreatment Engineering Report on Process Water Irrigation System and Resources Recovery, Carnation Processed Potatoes Division, Othello Plant, Othello, Washington.

J-U-B Engineers, Inc. 1998. Engineering Report, Process Water Resource Recovery and Irrigation System, Nestle USA, Processed Potatoes Division, Othello Plant, Othello, Washington.

J-U-B Engineers, Inc. 1997. Operation and Maintenance Manual, Lagoon, Pump Stations and Piping. May.

Nestle, USA. 1997. Operation and Maintenance Manual, Process Water Pretreatment Facilities. June.

Nestle, USA. 1997. Wastewater Spill Plan. May.

Nestle, USA. 1997. Solid Waste Control Plan. June.

Washington State Department of Ecology, 1993. Guidelines for Preparation of Engineering Reports for Industrial Wastewater Land Application Systems, Ecology Publication # 93-36. 20 pp.

Washington State Department of Ecology.

Laws and Regulations(<http://www.ecy.wa.gov/laws-rules/index.html>)

Permit and Wastewater Related Information
(<http://www.ecy.wa.gov/programs/wq/wastewater/index.html>)

Washington State Department of Ecology, 1996. Implementation Guidance for the Ground Water Quality Standards, Ecology Publication # 96-02.

APPENDICES

APPENDIX A--PUBLIC INVOLVEMENT INFORMATION

The Department has tentatively determined to reissue a permit to the applicant listed on page 1 of this Fact Sheet. The permit contains conditions and effluent limitations which are described in the rest of this Fact Sheet.

Public notice of application was published on March 3 and 10, 2005 in Othello Outlook to inform the public that an application had been submitted and to invite comment on the reissuance of this permit.

The Department will publish a Public Notice of Draft (PNOD) on March 31, 2005 in the Othello Outlook to inform the public that a draft permit and Fact Sheet are available for review.

Interested persons are invited to submit written comments regarding the draft permit. The draft permit, Fact Sheet, and related documents are available for inspection and copying between the hours of 8:00 a.m. and 5:00 p.m. weekdays, by appointment, at the regional office listed below. Written comments should be mailed to:

Water Quality Permit Coordinator
Department of Ecology
4601 North Monroe Street
Spokane, WA 99205-1295

Any interested party may comment on the draft permit or request a public hearing on this draft permit within the thirty (30) day comment period to the address above. The request for a hearing shall indicate the interest of the party and reasons why the hearing is warranted. The Department will hold a hearing if it determines there is a significant public interest in the draft permit (WAC 173-216-100). Public notice regarding any hearing will be circulated at least thirty (30) days in advance of the hearing. People expressing an interest in this permit will be mailed an individual notice of hearing.

Comments should reference specific text followed by proposed modification or concern when possible. Comments may address technical issues, accuracy and completeness of information, the scope of the facility's proposed coverage, adequacy of environmental protection, permit conditions, or any other concern that would result from issuance of this permit.

The Department will consider all comments received within thirty (30) days from the date of public notice of draft indicated above, in formulating a final determination to issue, revise, or deny the permit. The Department's response to all significant comments is available upon request and will be mailed directly to people expressing an interest in this permit.

Further information may be obtained from the Department by telephone, 509.329.3524, or by writing to the address listed above.

This Fact Sheet and the permit were written by Don Nichols.

APPENDIX B--GLOSSARY

Average Monthly Discharge Limitation--The average of the measured values obtained over a calendar month's time.

Best Management Practices (BMPs)--Schedules of activities, prohibitions of practices, maintenance procedures, and other physical, structural and/or managerial practices to prevent or reduce the pollution of waters of the State. BMPs include treatment systems, operating procedures, and practices to control: plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage. BMPs may be further categorized as operational, source control, erosion and sediment control, and treatment BMPs.

BOD₅--Determining the Biochemical Oxygen Demand of an effluent is an indirect way of measuring the quantity of organic material present in an effluent that is utilized by bacteria. Total BOD is determined on an unfiltered sample, while the soluble BOD test is performed on a filtered sample. Although BOD is not a specific compound, it is defined as a conventional pollutant under the federal Clean Water Act.

Bypass--The intentional diversion of waste streams from any portion of the collection or treatment facility.

Compliance Inspection - Without Sampling--A site visit for the purpose of determining the compliance of a facility with the terms and conditions of its permit or with applicable statutes and regulations.

Continuous Monitoring--Uninterrupted, unless otherwise noted in the permit.

Distribution Uniformity--The uniformity of infiltration (or application in the case of sprinkle or trickle irrigation) throughout the field expressed as a percent relating to the average depth infiltrated in the lowest one-quarter of the area to the average depth of water infiltrated.

Engineering Report--A document, signed by a professional licensed engineer, which thoroughly examines the engineering and administrative aspects of a particular domestic or industrial wastewater facility. The report shall contain the appropriate information required in WAC 173-240-060 or 173-240-130.

Grab Sample--A single sample or measurement taken at a specific time or over as short period of time as is feasible.

Industrial Wastewater--Water or liquid-carried waste from industrial or commercial processes, as distinct from domestic wastewater. These wastes may result from any process or activity of industry, manufacture, trade or business, from the development of any natural resource, or from animal operations such as feed lots, poultry houses, or dairies. The term includes contaminated storm water and, also, leachate from solid waste facilities.

Maximum Daily Discharge Limitation--The highest allowable daily discharge of a pollutant measured during a calendar day or any 24-hour period that reasonably represents the calendar day for purposes of sampling. The daily discharge is calculated as the average measurement of the pollutant over the day.

pH--The pH of a liquid measures its acidity or alkalinity. A pH of 7 is defined as neutral, and large variations above or below this value are considered harmful to most aquatic life.

Soil Scientist--An individual who is registered as a Certified or Registered Professional Soil Scientist or as a Certified Professional Soil Specialist by the American Registry of Certified Professionals in Agronomy, Crops, and Soils or by the National Society of Consulting Scientists or who has the credentials for membership. Minimum requirements for eligibility are: possession of a baccalaureate, masters, or doctorate degree from a U.S. or Canadian institution with a minimum of 30 semester hours or 45 quarter hours professional core courses in agronomy, crops or soils, and have 5,3,or 1 years, respectively, of professional experience working in the area of agronomy, crops, or soils.

State Waters--Lakes, rivers, ponds, streams, inland waters, underground waters, salt waters, and all other surface waters and watercourses within the jurisdiction of the state of Washington.

Stormwater--That portion of precipitation that does not naturally percolate into the ground or evaporate, but flows via overland flow, interflow, pipes, and other features of a storm water drainage system into a defined surface water body, or a constructed infiltration facility.

Technology-based Effluent Limit--A permit limit that is based on the ability of a treatment method to reduce the pollutant.

Total Coliform Bacteria--A microbiological test which detects and enumerates the total coliform group of bacteria in water samples.

Total Dissolved Solids--That portion of total solids in water or wastewater that passes through a specific filter.

Water Quality-based Effluent Limit--A limit on the concentration of an effluent parameter that is intended to prevent pollution of the receiving water.

APPENDIX C--TECHNICAL CALCULATIONS

Net Nitrogen Loading

Information was obtained from the nitrogen balance table in each years Irrigation and Crop Plan.

	Acres	Effluent-N (lbs/acre)	(lbs)	Crop-N (lbs/acre)	(lbs)	Balance (lbs)
1999	3002	196	588,392	163	489,326	99,066
2000	3029	201	608,829	179	542,291	66,638
2001	3064	188	576,032	159	487,176	88,856
2002	3187	143	452,554	149	474,863	-22,309
2003	3212	138	443,256	193	619,916	-176,660

APPENDIX D--RESPONSE TO COMMENTS

Comments on the draft permit were received from J.R. Simplot during the 30-day public comment period. The comments and Ecology's responses are in the attached "Response to Comments".

In addition to the comments received from the Permittee, Ecology made additional internal reviews of the draft permit during the public comment period and determined some changes/additions were needed. These are explained in the attached "Response to Comments".



COMMENTS TO SWDP ST5354, J.R. Simplot Company (Othello)

RESPONSES

14124 WHEELER ROAD NE MOSES LAKE WA 98837
(509) 793-1131 FAX (509) 765-7643

FOOD GROUP
WASHINGTON FIELD OFFICE

CERTIFIED MAIL: 7099 3220 0004 5256 5276

May 4, 2005

Don Nichols
Water Quality Program
WA Department of Ecology
4601 N. Monroe, Suite #202
Spokane, WA 99205-1295

Re: Response Letter to Draft Permit ST - 5354

Dear Don:

This letter is in response to State Waste Discharge Permit No. ST 5354 which was submitted to J.R. Simplot on March 24, 2005. After reviewing the draft permit we have several items listed below which we would offer for your consideration. Please note that *italicized text* is verbiage transcribed directly from the current draft permit and **bolded text** is our response to the various issues within the permit. Text that is "**bolded and within quotation marks**" is offered for your consideration to be included in the final permit which will be issued at a later date.

A. Coversheet - Page 1 of 20: SIC Code = 2038 2037.

B. Section 2B. Irrigated Wastewater Monitoring

1. "The sampling point for the irrigated wastewater shall be at a location that best represents what is being pumped and applied to the land treatment sprayfields."

Response: While it is implied in the title of this section "Irrigated Wastewater Monitoring" means sampling of wastewater during the irrigation season, we request the following text to be included, "The sampling point for the irrigated wastewater shall be at a location that best represents what is being pumped and applied to the land treatment sprayfields. The Permittee shall monitor the irrigated wastewater according to the following schedule while irrigating during the land application season".

As we discussed Don, we would also propose that the BOD₅ monitoring parameters be replaced with COD monitoring instead. In addition to the "Ortho-phosphate (as

Comment: Error in the SIC code on the permit cover page.

Response: Thank you for the correction; the code will be changed to 2037.

Permit Section S2

Comment: Edit the second paragraph in Section S2.B to show that sampling is only required when irrigating.

Response: For clarification, the second sentence in Section S2.B will be changed to read:

"The Permittee shall monitor the irrigated wastewater according to the following schedule **while irrigating during the land application season.**"

Comment: Replace the proposed BOD testing in Section S2.B with COD.

Response: It was not made clear in the Fact Sheet that a reason for changing from COD to BOD testing was, in part, at attempt to reduce the waste generation from the COD testing methodology by the testing lab.

As stated on pg. 15 of the Fact Sheet, the purpose for the BOD testing is to help assess the potential impacts on the ground water from the application of wastewater onto fallow fields. Since the COD test includes the measurement of organic material, and changing to COD testing will help maintain data consistency with the previous permit, Ecology agrees to change the BOD testing in S2.B to COD. The parameter list in the table will show: "Total COD" and "Total Soluble COD".

COMMENTS TO SWDP ST5354, J.R. Simplot Company (Othello)

RESPONSES

p) sampling parameter we recommend that "Total P" be added to the final permit as a sampling parameter.

C. Section 2C - Soil Monitoring. 1. Annual Monitoring

- 1st paragraph: "... Testing at each sampling site shall be done on one foot soil increments or until auger-probe refusal.
- 2nd Paragraph: "Composite samples will be for 6 depths (or until auger refusal) and will be from a minimum of 6 cores."

Response: We do not utilize an auger to gather soil samples but rather a soil probe device. A soil probe maintains sample integrity during collection while augers tend to mix the soil profile.

3. Table, Page 7 of 20:

Parameter	Units	Sample Frequency	Depth	Sample Type
SAR	***	2/year 1/yr.	1'	Composite
CEC	meq/100g	2/year 1/yr	1'	Composite
Organic Matter	%	2/year 1/yr	1'	Composite
Moisture Content	inches	2/year-1/yr	6'	Composite
Conductivity	Mmbhos/cm	2/year 1/yr	6'	Composite
pH	s.u.	2/year 1/yr	1'	Composite
TKN	lbs/ae mg/Kg	2/year 1/yr	1'	Composite
NO3	mg/Kg	2/year 1/yr	6'	Composite
Ortho-P	mg/Kg	2/year 1/yr	1'	Composite
Sodium	mg/Kg	2/year 1/yr	1'	Composite
Calcium	meq/100g	2/year 1/yr	1'	Composite
Magnesium	meq/100g	2/year 1/yr	1'	Composite
Potassium	mg/Kg	2/year 1/yr	1'	Composite
Sulfate	mg/Kg	2/year 1/yr	1'	Composite
Total Salts	lbs/ae mg/Kg	2/year 1/yr	6'	Composite

4. Page 8, Section 2.D. Crop Monitoring. 1st Paragraph. "The Permittee shall perform crop monitoring on each field once per harvest for alfalfa, grass, mint, wheat, and related types of crops. Composite samples will be comprised of at least ten (10) random samples."

Response: For crops wheat and corn the values do not change, we can do a composite. For alfalfa we sample every cutting. Refer to wording in Moses Lake Permit and repeat for Othello. We currently compare with standards and Moses Lake is within the standards, so we use that. The appropriate verbiage is as follows:

"The Permittee shall perform crop monitoring for each sprayfield and shall collect a minimum of five (5) composite samples for each crop type, at harvest, for comparison to the range of values found in the literature

Comment: Request to add "Total P" to testing in Section S2.B.

Response: Total Phosphate (as P) will be added to the list of parameters in Section S2.B.

Permit Section S2.C

Comment: Change term from "auger refusal" to "probe refusal" in 1st and 2nd paragraph in Section S2.C.

Response: The terms will be changed to "probe refusal".

Comment: Change the frequency of testing, the depths of samples, and the units in Section S2.C.

Response: Explained later in the comment letter (for permit Section S5.D), the requested change in the testing frequency is based on the condition of the fields during fallow conditions at Simplot's sprayfield site. Fallow does not mean the absence of a cover crop. A volunteer stand of wheat and other crop types are present after harvest and during the Fall/Winter fallow season. Ecology's basis for requiring a 2/year sampling frequency for the soils in S2.C was based on assuming bare soil conditions during fallow conditions. Now that it is understood that there is a cover crop during fallow conditions, a reduction in soil sampling is reasonable.

It is agreed that the soil sampling frequency in Section S2.C will be reduce from "2/year" to "1/year", which will be at the end of the growing season.

Ecology also agrees to add the requested "Depth" column and change the units for TKN and Total Salts. However, instead of only one soil depth for TKN and NH₃, the permit will require the testing for depths 1-6 to coincide with nitrate testing.

COMMENTS TO SWDP ST5354, J.R. Simplot (Othello)

RESPONSES

Permit Section S2.D

Comment: Request to change the wording in Section S2.D to be the same as the permit for Simplot's Moses Lake facility.

Response: Ecology's main concern is that representative samples are collected of the different crops so that a good approximation can be made regarding the uptake of nutrients. This is very important in the determination of the nutrient balances for nitrogen and salts.

Given that the wording was acceptable in the permit for the Moses Lake facility, Ecology agrees to the proposed wording change to Section S2.D.

Permit Section S3

Comment: Please specify what is meant by "monitoring data".

Response: The term monitoring data refers to all sampling and measuring requirements in Section S2 that do not have a designated reporting or submittal requirement. These sampling and measuring requirements are given in Section S2.A and S2.B.

The wording in Section S3.A will be changed to read: "Monitoring data obtained as required by Section S2.A and S2.B during the previous month shall be summarized....."

Permit Section S5

Comment: An explanation is given on what is meant by "fallow" conditions at Simplot's sprayfield site.

Response: Ecology appreciates a better explanation of fallow conditions, and that a volunteer cover crop develops after the harvest and is present during the

used by the Permittee for calculating nutrient balances. If the values for any crop are more than 25% different from the literature values, the Permittee shall sample that crop again the following year. If the crop nutrient values are consistently different from the literature values, the Permittee shall thereafter use the average values from its own two years of sampling. If the values for the second year are within 25% of the literature values then the Permittee shall continue to use the literature values used in previous annual summaries."

5. Section 3. "REPORTING AND RECORDKEEPING REQUIREMENTS". A. Reporting. 1st Paragraph: "The first monitoring period begins on the effective date of the permit. Monitoring results shall be submitted monthly. Monitoring data obtained during the previous month shall be summarized and reported on a form provided, or otherwise approved, by the Department, and be received no later than the 15th day of the month following the completed reporting period, unless otherwise specified in this permit."

Response: What monitoring data? Please specify exactly what data is needed/required.

6. Section 5D.3 "Consideration shall be given to planting a cover crop on all "fallow" fields that will receive process wastewater."

Response: The word "fallow" is the term for a cropping system and has been a reference used by Simplot over the years where-in a wheat crop is harvested every other year from a unit of farm land. This system takes the advantage of two years of rainfall (annual net rainfall to soil about 5 inches) plus the soils capacity to hold 2.5 inches per foot and the capacity of winter wheat to withdraw moisture and nutrients from 6 feet of soil profile.

The system is as follows:

- Wheat crop is harvested in July or second half of year one.
- Effluent is applied in the fall of year one or spring of year 2 to the harvested field.
- The wheat that shatters during the harvest process from the year one crop germinates after application of effluent or after winter rainfall in spring of year 2. Care is used to apply only enough moisture to allow for soil capacity to hold winter rainfall and not to exceed crop nitrogen uptake projections.
- In mid spring of year two, the volunteer wheat is killed by a herbicide application.
- About mid May of year two, the field is cultivated to prepare a seedbed and eliminate any weeds. It is again cultivated or weeded in late June to eliminate

COMMENTS TO SWDP ST5354, J.R. Simplot Company (Othello)

RESPONSES

Fall/Winter fallow conditions. Having a cover crop is important to provide treatment of the wastewater when it is applied, and is considered a part of AKART for land treatment systems.

The wording in Section S5.D.3 of the permit will be changed from: "Consideration shall be given to planting a cover crop on all "fallow" fields that will receive process wastewater", to "The growth of a volunteer cover crop on all fallow fields shall be promoted."

Permit Section S5.E

Comment: The current barrel washing system used to remove the potato peel produces the best product, produces the most marketable by-product, and contributes a small amount to the total nutrient, organic, and salt load to the wastewater system.

Response: As explained on pg. 15 of the Fact Sheet, it was Ecology's understanding that a better way was available to keep the peel solids out of the waste stream, and reduce the organic loading and generation of odors. From the information presented in the comment, the current system (barrel washer and barrel screen) appears to be the best for product and by-product production.

Ecology agrees to take out Section S5.E from the permit, but encourages J.R. Simplot to look at and assess alternatives to the current peel removal system to reduce organic loading. The following language will be removed:

Potato Peel Management

No later than July 1, 2006, the Permittee shall inform the Department, in writing, what steps will be taken and a timetable for eliminating the discharge of the mechanically removed potato peel material from the process wastewater stream. The discharge of the potato peel must stop no later than June 1, 2010.

weeds. The field has no growing weeds or crop and generally no rainfall occurs, hence the word "fallow".

- A winter wheat crop is planted in late August or early September.
- Rain fall is again accumulated over winter but no further effluent is applied to the crop. As the crop is growing, rainfall and crop use are nearly balanced during the fall and winter of the second year.
- The crop is then harvested in the first half of year 3 and the cycle begins again.

7. Section 5E. Potato Peel Management "No later than July 1, 2006 the Permittee shall inform the Department, in writing what steps will be taken and a timetable for eliminating the discharge of the mechanically removed potato peel material from the process wastewater stream. The discharge of the potato peel must stop no later than June 1, 2010."

Response: Moses Lake currently uses a barrel washer system to remove all the loose peel material produced during the steam peeling process. The barrel washer uses water and scrubbing to remove all the loose material before the potato moves on to the next process. All the loose material in the water goes to the wastewater treatment system where a barrel screen removes approximately half of the material (the fibrous portion of the skin) as dry product off the screen. Barrel washers produce the best quality potato for processing; other processes that use less water leave bits of material on the potato and can also leave a mucous layer that is not desirable for cooking.

Other processes that collect the peel as a "dry" product usually contains about 90-92% moisture in the "dry" product. This type of material has not been a marketable product for animal feed by itself because of the high moisture content. Methods to "dewater" the peel to higher solids content usually require processes that use chemicals or a heat/freeze process that produces as much or more waste material that ends up in the wastewater treatment system and is usually not cost effective. The peel usually has a "digestible nutrient and carbohydrate" content that is only about half of other types of potato wastes such as the cull potatoes and the chips and pieces from cutting the potato, further reducing marketable value of the product.

Presently, the peel probably represent less than 15% of the total nutrient, organic load and salt content of the wastewater that goes to land application. The process plant is evaluating more efficient peeling equipment that may reduce the amount of loose peel material and that may increase the percentage of the loose material that is recoverable on the wastewater screens as fibrous material.

Based on the information above, requiring a "dry collection system" is neither effective for potato processing or reasonable for reducing solids and nutrient in the wastewater going to land application.

COMMENTS TO SWDP ST5354, J.R. Simplot Company (Othello)

RESPONSES

Permit Section S6

Comment: Simplot's consultant is currently working on the solid waste control plan.

Response: Noted

Permit Section S8

Comment: The soils at the sprayfield site have a capacity to buffer changes in wastewater loads, and therefore their chemistries are dynamic over time. Corrective actions can be made in the irrigation and nutrient management of the site to correct any soil trends that could impact the ground water. A Best Management Practices section should be added to Section S8 to reflect this.

Response: In the absence of a ground water monitoring system at Simplot's site to assess the potential impact on the ground water, soil profile data is used in conjunction with nutrient balance analysis to assess potential impacts. Ecology understands that variations in crop uptake during any year can cause nutrient and/or water loading to exceed the needs of the crop; i.e., exceed the agronomic rate. This im-balance can be addressed by changing the cropping and irrigation schedule in the following year(s) to mitigate any adverse trends that may occur in the soils that could impact ground water. The intent being that the sprayfield system, not necessarily each sprayfield, will be operated in a manner that meets the agronomic rate requirement of the permit. Mitigation measures will be taken on those sprayfields that do not meet the requirement.

J.R. Simplot currently reports two year trend analysis of soil data in the annual irrigation and crop plan, and compares this data to background values that were determined before the fields were put online for wastewater treatment. Changes in soil chemistries that could impact the ground water are detected and changes can be made in specific fields to mitigate these potential problems.

8. Section 6.C.Solid Waste Control Plan "No later than July 1, 2006, the Permittee shall submit an updated solid waste control plan."

Response: CES is currently working on the SWCP.

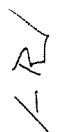
9. Section 8. IRRIGATION AND CROP MANAGEMENT PLAN

- a. Section B. "Cropping Schedule for Upcoming Year"

Response: The department understands that the agricultural system is one that is dynamic and that soils have a capacity to buffer loads. Therefore corrective actions can be made to trends in long term changes in total soil loads and still be protective of groundwater and the environment. Short term changes in soil loads are a part of normal agricultural systems. Don proposed adding an item 4 titled "Best Management Practices" to include wording for a two year averaging of a cropping plan.

If you have any questions or require any additional information please contact me at (509) 765-3443 or e-mail, jim.redmond@simplot.com.

Sincerely,


Jim Redmond
Farm Manager

cc: Henry Hamanishi, J.R. Simplot Co.
Mel Martin, J.R. Simplot Co.
Steve Anderson, J.R. Simplot Co.

COMMENTS TO SWDP ST5354, J.R. Simplot Company (Othello)

RESPONSES

FROM ML SIMPLOT FIELD DEPT

(TUE) MAY 10 2005 14:49/ST.14:18/NO. 6306544627 P. 6

To address the issue of system performance and the agronomic rate requirement, the following language will be added to the permit.

New language in Section S8.A.5:

"Soil profile data for nitrate, moisture, and conductivity will be presented for each sprayfield for the two most previous years, and compared to the field's respective background values."

Response: Ecology proposes to reduce the permitted sprayfield acreage from 3,680 acres to 3,200 acres. The logic is that Simplot is not irrigating the corners of the center pivot fields which accounts for the change in acreage. It does not seem logical appropriate to reduce the available acreage for the sprayfield system because it is not used at this time. It is important to have the flexibility to use the corners if needed or if chosen in the future for process water management. Please keep the available acreage the same to allow for management flexibility. Simplot will accurately report all acreage irrigated each year within the available acreage.

Page 11 COMPARISON OF LIMITATIONS WITH THE EXISTING PERMIT REISSUED JANUARY 24, 2001

FACT SHEET

Page 14. Fallow Fields

Ecology's Verbiage: "To allow for a departure from Ecology's guidance and a continuation, at least for this permit cycle, of the wheat/fallow irrigation practices at the site, it has been decided to require some additional testing of the irrigated wastewater. Soluble BOD testing of the irrigated wastewater will be added to the permit. Knowing the relationship between the total and soluble fractions of the BOD in the irrigated wastewater will provide information in the potential impacts of applying wastewater to the sprayfields, especially during fallow conditions. Soluble BOD can percolate deeper in to the soil column and cause changes in the cation/anion and nitrate makeup of the percolate as the organic matter is mineralized."

Response: Adding Soluble BOD testing to the irrigated wastewater monitoring requirements is of itself only an added cost. However, Ecology is applying the logic and chemistry of high hydraulic loading regimes to a dry cropping environment. It is assumed that Ecology is referring to the dissolution of cations from the soil minerals that occurs under poor soil gas exchange conditions where carbon dioxide produced by BOD digestion becomes carbonic acid then dissolved bicarbonate. These types of chemical changes that would impact the cation/anion makeup of the percolate and increase groundwater TDS occur under high hydraulic loadings with poor gas exchange in the soil environment.

In the dryland wheat-fallow cropping systems at this site, the soil profile is completely dried by the crop every second year. The hydraulic loads are limited to maintaining unsaturated soil conditions that are conducive to adequate gas exchange within the soil profile. The soluble BOD penetration and enhancement of percolate TDS should be of the least concern in this cropping moisture regime and low (6 inches) process water loads. It certainly is not a valid criterion to determine the viability of the wheat-fallow cropping system at this site. Please reconsider this approach to the land application regulatory process it has limited scientific basis in aerobic, lightly to moderately-loaded conditions typical of most Eastern Washington land application systems.

A new Section S8.B.4:

4. Best Management Practices: A description of the irrigation and crop BMPs that will be implemented to help insure compliance with the agronomic rate and ground water quality protection discharge limitations in Section S1 of the permit by the sprayfield site

FACT SHEET comments

Comment: On Page 11, Table 3 of the Fact Sheet Ecology proposes to reduce the permitted sprayfield size; 3680 to 3200 acres. Please keep the available acreage the same as in the previous permit.

Response: Ecology did not use any "logic" to reduce the permitted sprayfield size from 3680 to 3200 acres. The permit application showed a list of sprayfields that totaled 3197 acres. Simplot's sprayfield manager was consulted to verify the smaller acreage size. Ecology was told that the smaller acreage size was due to not irrigating the corners of the sprayfields. The acreage in the Fact Sheet and permit reflect the value that was given in the permit application.

Ecology believes that the wording and description of the designated irrigation lands in Section S1 is inclusive enough to allow for the use of the sprayfield corners if they are used. No changes will be made in the permitted acreage.

6

COMMENTS TO SWDP ST5354, J.R. Simplot Company (Othello)

RESPONSES

Comment: Ecology's logic of high organic strength wastewater onto a dryland wheat/fallow system and causing the dissolution of cations from the soils and potentially into the ground water is in error.

Response: Ecology is aware that the dissolution of soil cations from insoluble carbonates from the decomposition of organic material is dependent, in part, on the moisture level, and is highest during saturated conditions. As explained in the Fact Sheet, the concern is the application of wastewater onto fallow fields during the Fall and Spring seasons when precipitation and soil moisture levels are higher. It is not unreasonable to collect some data to assess the potential for cation dissolution during fallow season applications. This is especially true for this site where there is no ground water monitoring system, and reliance has been placed on implementing best irrigation and crop management to protect the ground water.

After several years of data collection, Ecology would consider a request to reduce or eliminate the soluble COD testing in Section S2.B.

During the Public Comment period, Ecology determined that some changes/additions to the draft permit were needed. The Permittee was verbally notified of these proposed changes and had no objection.

Addition: The annual Irrigation and Crop Management Plan (Section S8) requires, in part, that nutrient and salt loadings from the supplemental irrigation water be accounted for in the calculated nutrient, salt and water balances. However, there is no testing requirement for the supplemental water in the permit. Supplemental water from the supply well and the bureau's East Low Canal is sometimes directly applied to the sprayfields.

Section S2 of the permit will be changed to show S2.C as "Freshwater Irrigation Monitoring". Testing will be for TKN, nitrate fixed dissolved solids, sodium, calcium, magnesium, chloride, sulfate, and bicarbonate will be done only once during the permit cycle; 2005. This is based on the assumed consistency of the water sources between years. The single values will be used to account for freshwater loadings in all annual irrigation and crop plans during this permit cycle.

The other sections of S2 following S2.C will be renumbered.



ADDENDUM 1

Wastewater Characteristics



FACILITY NAME: JR SIMPLOT CO OTHELLO

COVERS: 01/01/01 TO: 07/31/04

MONITOR. EFFLUENT

POINT

1

1

1

FLOW

AVG

MAX

TOTAL

DATE

MGD

QL

MGD

QL

MG

QL

Jan-01	2.237		2.584		69.342	
Feb-01	2.43		2.526		68.047	
Mar-01	2.487		2.735		77.099	
Apr-01	2.104		2.846		63.114	
May-01	2.016		2.228		62.483	
Jun-01	2.088		2.452		62.647	
Jul-01	1.606		1.95		24.095	
Aug-01	2.366		2.565		61.515	
Sep-01	2.248		2.89		67.446	
Oct-01	2.3		2.6		72.3	
Nov-01	2.491		2.583		74.72	
Dec-01	2.375		2.547		47.5	
Jan-02	2.29		2.768		64.138	
Feb-02	2.285		2.623		38.841	
Mar-02	2.475		2.762		47.022	
Apr-02	2.084		2.692		33.357	
May-02	2.436		2.655		56.045	
Jun-02	2.352		2.7		51.764	
Jul-02	2.367		2.548		56.819	
Aug-02	2.42		2.757		6.515	
Sep-02	2.422		2.614		67.816	
Oct-02	2.377		2.612		73.69	
Nov-02	2.341		2.608		32.7	
Dec-02	2.431		2.563		48.628	
Jan-03	2.383		2.547		73.9	
Feb-03	2.338		2.378		56.128	
Mar-03	1.931		2.414		48.298	
Apr-03	2.1		2.4		46.567	
May-03	1.972		2.498		59.17	
Jun-03	2.3		2.6		48.3	
Jul-03	2.207		2.818		52.969	
Aug-03	2.11		2.554		51.169	
Sep-03	2.315		2.92		69.461	
Oct-03	2.48		2.788		76.908	
Nov-03	2.425		2.797		59.153	
Dec-03	2.545		2.723		53.461	
Jan-04	2.387		2.703		64.472	
Feb-04	2.525		2.692		45.457	
Mar-04	2.451		2.612		73.537	
Apr-04	0.71		2.416		14.901	
May-04	2.4		2.6		62.6	
Jun-04	1.989		2.553		59.631	
Jul-04	1.8		2.7		56.9	

AVERAGE 2.24 2.61 55.8

MAXIMUM 2.545 2.92 77.1

MINIMUM 0.71 1.95 6.52

C = No Discharge

E = Analysis not done



JR SIMPLOT CO OTHELLO

A shaded cell denotes a violation

	LA1		LA1		LA1		LA1		LA1		LA1		LA1		
	pH		TKN (as N)		COD		COND		TDS		OIL & GREASE		SODIUM		
	GRAB SAMPLE		GRAB SAMPLE		GRAB SAMPLE		GRAB SAMPLE		GRAB SAMPLE		GRAB SAMPLE		GRAB SAMPLE		
DATE	s.u.	QL	mg/L	QL	mg/L	QL	umhns/cm	QL	mg/L	QL	mg/L	QL	mg/L	QL	
Jan-01		C		C		C		C		C		C			
Feb-01		C		C		C		C		C		C			
Mar-01	7.1		132		948		1843		1381		8.7		103		
Apr-01	7.3		147		1102		2000		1436		20.9		114		
May-01	7.6		126		943		2060		1189		6.9		91		
Jun-01	7.5		74		460		1371		874		16.3		59		
Jul-01	7.6		127		630		1838		951		11				
Aug-01	9.2		6.5		30		184		134		2.2				
Sep-01		C		C		C		C		C		C			
Oct-01	7.7		89		553		1800		918		22.3		116		
Nov-01	6.7		118		1371		1985		1293		15.4				
Dec-01		C		C		C		C		C		C			
Jan-02		C		C		C		C		C		C			
Feb-02		C		C		C		C		C		C			
Mar-02	6.6		116		1792		1924		1331		23.7				
Apr-02	6.5		98		1641		2040		1423		16.4		97.7		
May-02	6.7		54		912		1137		768		13.5				
Jun-02	6.8		63		1096		E		926		16.6				
Jul-02	7.3		165		1174		1982		1254		30.9				
Aug-02	7.3		40		300		836		468		14.8		30.2		
Sep-02	7.4		19.4		139		481		1254		9.2				
Oct-02	7.4		42		205		820		445		15.3				
Nov-02	6.8		100		1532		1708		1227		13.8				
Dec-02		C		C		C		C		C		C			
Jan-03		C		C		C		C		C		C			
Feb-03		C		C		C		C		C		C			
Mar-03	7.8		131		912		2340		1332		26				
Apr-03	7.8		121		697		2190		1203		20.2		113		
May-03	7.3		74		587		1369		828		15.5				
Jun-03	7.2		91		552		1149		623		28.7				
Jul-03	7.6		97		506		1630		862		23.1				
Aug-03	7.2		38		437		769		496		25.5		33.2		
Sep-03	7.5		21		156		561		348		28.6				
Oct-03	7		108		969		1750		1200		32.6				
Nov-03	7		148		1423		2000		1318		20.2				
Dec-03		C		C		C		C		C		C			
Jan-04		C		C		C		C		C		C			
Feb-04		C		C		C		C		C		C			
Mar-04	8.3		107		854		2080		1430		36.7				
Apr-04	7.2														

C = No Discharge

E = Analysis not done

WPLCS DMR Data Analysis Report - Data Values

Page 2 OF 2

FACILITY NAME: JR SIMPLOT CO OTHELLO

COVERS: 01/01/01 TO: 07/31/04

IRRIGATED WASTEWATER

	LA1		LA1		LA1		LA1		LA1		LA1		LA1	
	CALCIUM		MAGNESIUM		POTASSIUM		SULFATE		CHLORIDE		BICARBONATE		Ortho- PHOSPHATE	
	GRAB SAMPLE		GRAB SAMPLE		GRAB SAMPLE		GRAB SAMPLE		GRAB SAMPLE		GRAB SAMPLE		GRAB SAMPLE	
DATE	mg/L	QL	mg/L	QL	mg/L	QL	mg/L	QL	mg/L	QL	mg/L	QL	mg/L	QL
Jan-01														
Feb-01														
Mar-01	10		15		301		6		69		751		39	
Apr-01	12		16		295		3		52		836		39.8	
May-01	13		14		294		3		43.7		729		38.4	
Jun-01	15		11		179		0.8		33		515		25.6	
Jul-01														
Aug-01														
Sep-01														
Oct-01	15		14		245		5		49		357		32	
Nov-01														
Dec-01														
Jan-02														
Feb-02														
Mar-02														
Apr-02	11.7		15.2		286		13		54		363		32	
May-02														
Jun-02														
Jul-02														
Aug-02	15.1		8.2		96.1		10		24		262		10.5	
Sep-02														
Oct-02														
Nov-02														
Dec-02														
Jan-03														
Feb-03														
Mar-03														
Apr-03	17.1		17.3		314		2		59		888		41.9	
May-03														
Jun-03														
Jul-03														
Aug-03	14.7		7.5		84		58.5		17		173		11.6	
Sep-03														
Oct-03														
Nov-03														
Dec-03														
Jan-04														
Feb-04														
Mar-04														
Apr-04	13.1		17		288		2		69		55.6		55.6	
May-04														
Jun-04														
Jul-04														

AUG
MAX
MIN

13.7	13.52	238	10.3	47.0	493	32.6
17.1	17.3	314	58.5	69	888	55.6
10	7.5	84	0.8	17	55.6	10.5

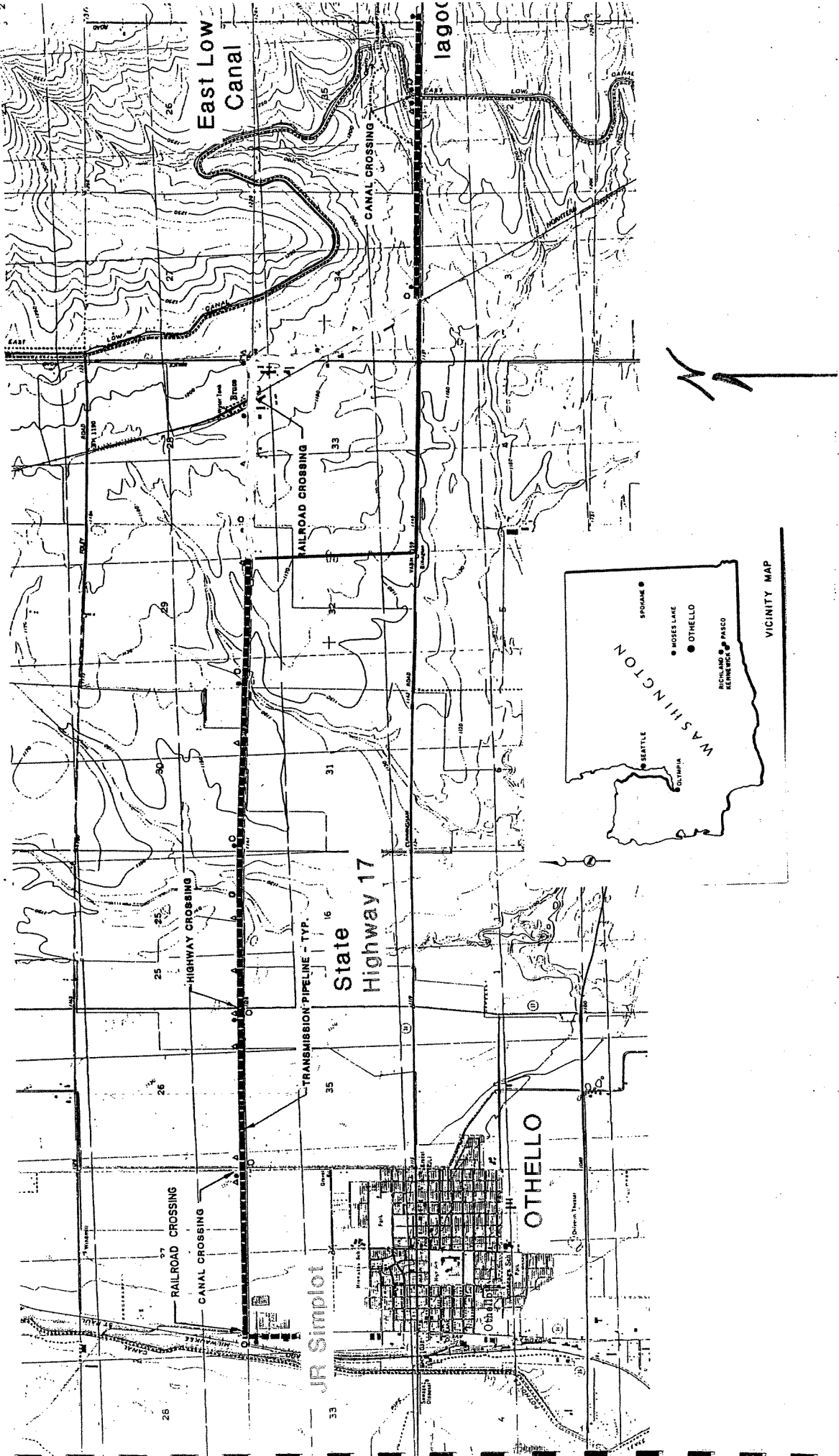


Figure 1. Wastewater and lagoon system.

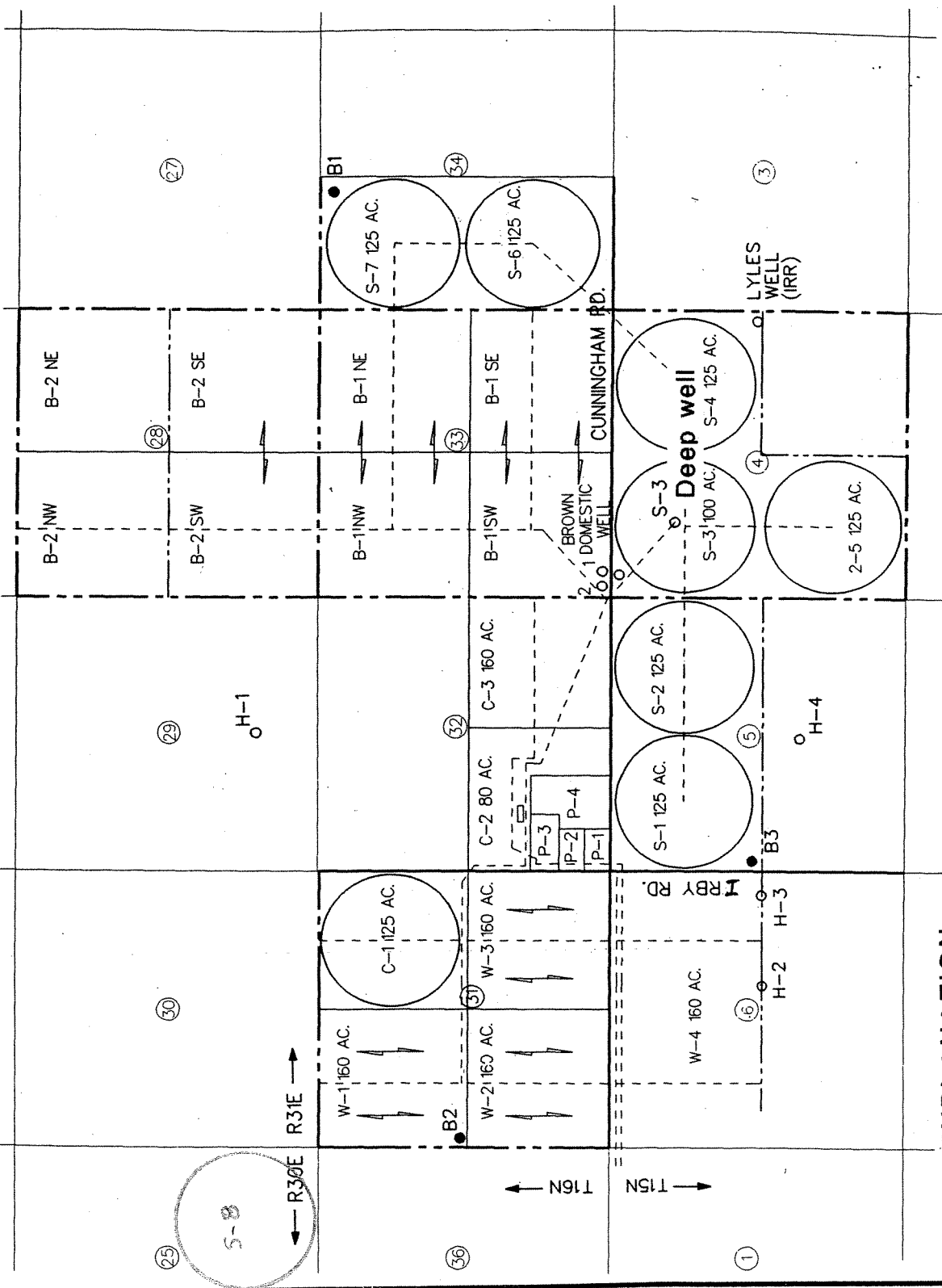
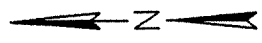
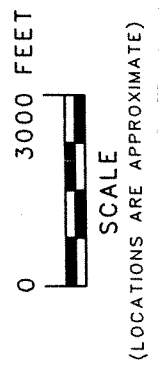


FIGURE 2 - Process Water Application Area and storage lagoon

POND CAPACITY

P-1	62 AC. FT.
P-2	62 AC. FT.
P-3	92 AC. FT.
P-4	584 AC. FT.



EXPLANATION

- B1 Boring Location
- H-2 Well Location
- Water Line
- Wheel Line Travel
- Carnation Co. Land
- Skone & Conners
- Brown
- Wirth
- Section Number